

NELSON J. GERNERT

Thermacore, Inc.

Position: Development Engineer/Group Leader

Clearance: DOD Secret

### Summary of Contracts

- NAS9-18674 - 1992 Phase I SBIR - This is a recent effort to demonstrate the feasibility of a thin membrane heat pipe radiator for heat rejection on the lunar surface.
- NAS8-39345 - 1992 Phase I SBIR - Under this contract, Mr. Gernert is developing a new type of furnace to enhance crystal growth in a gravity free environment.
- NAS8-38901 - 1991 Phase I SBIR - Under this contract, Mr. Gernert demonstrated the feasibility of the Moving Gradient Heat Pipe Furnace. The proposed follow-on Phase II effort has been awarded and contract release is pending.
- NAS8-38437 - 1990 Phase I SBIR - Mr. Gernert demonstrated the feasibility of using lightweight composite materials in the construction of heat pipes for space applications. His success lead him to the following Phase II effort.
- NAS8-38965 - 1991 Phase II SBIR - This Phase II is for the development of a 15 meter long composite material radiator heat pipe for space. This Phase II began in June 1991.
- Under a 1988 Phase I and subsequent Phase II contracts to the Navy, Mr. Gernert developed a Flexible Heat Pipe Cold Plate to cool electronics mounted on an actuator being developed for the Navy F/A-18 aircraft.
- NAS8-37261 - 1986 Phase II SBIR - Under this contract, Mr. Gernert developed two 15 meter long aluminum/ammonia radiator heat pipes for heat rejection in space.
- NAS9-17305 - 1985 Phase II SBIR - In this program, Mr. Gernert developed a 16 meter long deployable radiator heat pipe for hear rejection in space. This heat pipe had two flexible joints which enabled it to be folded into thirds to form a compact deployable radiator.

### Selected Publications

"High Performance Flexible Heat Pipes," R.M. Shaubach and N.J. Gernert, 20th AIAA Thermophysics Conference, Williamsburg, Virginia, June 19-21, 1983.

"Analysis and Performance Evaluation of Heat Pipes With Multiple Heat Sources," N.J. Gernert, 4th AIAA Thermophysics and Heat Transfer Conference, Boston, Massachusetts, June 2-4, 1986.

"Flexible Heat Pipe Cold Plates for Aircraft Thermal Control" NJ. Gernert, D.B. Sarraf, M. Steinburg. SAE Aerotech Conference, Long Beach, CA, September 24-27, 1991.

"A Thermal Analysis of an F/A-18 Wing Section for Actuator Thermal Control", N.J. Gernert, D.B. Sarraf. 1992 SAE Aerospace Atlantic Conference, Paper No. 921034, Dayton, Ohio, April 7-10, 1992.

"Sodium Heat Pipe with Sintered Wick and Artery Effects of Non-Condensable-Gas on Performance" R.M. Shaubach, N.J. Gernert, Space Nuclear Power Conference, Albuquerque, New Mexico, January 1992.

## ATTACHMENT

Robert M. Shaubach  
Manager, Development Operations, Thermacore, Inc.

### Selected Publications

"Articulated Heat Pipe Design, Fabrication, and Test Report:", Contract F33615-81-C-3413, Prepared by Air Force Flight Dynamics Laboratory, Wright Patterson Air Force Base, Ohio, January 1983.

"Evaluation of Submarine Auxiliary System Closed Cycled Vaporization Cooling", Contract N00167-83-M-1504, Prepared for David Taylor Naval Ship Research and Development Center, Annapolis, Maryland, June 1982.

"Articulated Heat Pipe Concepts and Developments", D.M. Ernst and R. M. Shaubach, SAB Technical Paper 831102, Thirteenth Intersociety Conference on Environmental Systems, July 1983.

"Heat Transport Across Structural Boundaries", Robert M. Shaubach, AIAA-84-0977, AIA 20th Thermophysics Conference, Williamsburg, Virginia, June 1985.

"Boiling and Two-Phase Flow in the Capillary Porous Structure of Heat Pipe", B.S. Singh and R.M. Shaubach, June 1987.

"Advanced Heat Pipe Technology for Space Heat Transport and Rejection Technologies", G.Y. Eastman, D.M. Ernst, R.M. Shaubach and J. E. Toth, Space Power, Vol. 9, No. 1, 1990.

"Boiling in the Heat Pipe Evaporator Wick Structures", R.M. Shaubach, P.M. Dussinger and J.E. Bogart, International Heat Transfer Conference, Minsk, USSR, May 1990.